WHAT IS CLAIMED IS:

1. An optical transmission system comprising:

an optical transmission line through which a plurality of signal light components having wavelengths different from each other included in a predetermined wavelength band are transmitted;

an optical amplifier, installed on said optical transmission line, having a wavelength-dependent noise figure; and

a plurality of multiplexing stations each constituted by a signal multiplexing section installed on said optical transmission line connected to an input end side of said optical amplifier, and at least one signal light outputting means for outputting a signal light component multiplexed at said signal multiplexing section;

wherein, between two of said multiplexing stations adjacent each other, said signal light outputting means of said multiplexing station disposed upstream in a signal light propagating direction outputs a signal light component having a signal wavelength set so as to yield a noise figure lower than that of the signal wavelength of a signal light component outputted from said signal light outputting means of said multiplexing station disposed downstream.

2. An optical transmission system according to claim 1, wherein said signal multiplexing section includes ~~an~~ optical ADM.

3. An optical transmission system according to claim 1, wherein said signal multiplexing section includes a WDM coupler.

4. An optical transmission system according to claim 1, wherein said optical amplifier is an Er-doped fiber amplifier.

5. An optical transmission system according to claim 1, further comprising signal wavelength indicating means for indicating a setting of said signal wavelength for said signal light outputting means in each of said plurality of multiplexing stations according to said noise figure.

6. An optical transmission system comprising:

an optical transmission line through which a plurality of signal light components having wavelengths different from each other included in a predetermined wavelength band are transmitted;

a plurality of optical amplifiers, installed on said optical transmission line, each having a wavelength-dependent noise figure;

a first multiplexing station having a first signal multiplexing section installed upstream said plurality of optical amplifiers in a signal light propagating direction, and first signal light outputting means for outputting a first signal light component multiplexed at said first signal multiplexing section;

a second multiplexing station having a second signal multiplexing section installed between said plurality of optical amplifiers, and second signal light outputting means for outputting a second signal light component multiplexed at said second signal multiplexing section; and

a receiving station, installed downstream said plurality of optical amplifiers, for receiving said first signal light component having a first signal wavelength multiplexed at said first signal multiplexing section and said second signal light component having a second signal wavelength multiplexed at said second signal multiplexing section;

wherein said first signal light outputting means outputs said first signal light component having said first signal wavelength set such that said noise figure between said first signal multiplexing section and said receiving station is lower than that of said second signal wavelength.

7. An optical transmission system according to claim 6, wherein said signal multiplexing section includes an optical ADM.

8. An optical transmission system according to claim 6, wherein said signal multiplexing section includes a WDM coupler.

9. An optical transmission system according to claim 6, wherein said optical amplifier is an Er-doped fiber amplifier.

10. An optical transmission system according to claim 6, further comprising signal wavelength indicating means for indicating a setting of said signal wavelength for said signal light outputting means in each of said plurality of multiplexing stations according to said noise figure.

11. An optical transmission system comprising:

an optical transmission line through which a plurality of signal light components having wavelengths different from each other included in a predetermined wavelength band are transmitted;

a plurality of optical amplifiers, installed on said optical transmission line, each having a wavelength-dependent noise figure;

a first multiplexing station having a first signal multiplexing section installed upstream said plurality of optical amplifiers in a signal light propagating direction, and first signal light outputting means for outputting a first signal light component multiplexed at said first signal multiplexing section;

a second multiplexing station having a second signal multiplexing section installed upstream said plurality of optical amplifiers but downstream said first signal multiplexing section, and second signal light outputting means for outputting a second signal light component multiplexed at said second signal multiplexing section; and

a receiving station, installed downstream said plurality of optical amplifiers, for receiving said first signal light component having a first signal wavelength multiplexed at said first signal multiplexing section and said second signal light component having a second signal wavelength multiplexed at said second signal multiplexing section;

wherein said first signal light outputting means outputs said first signal light component having said first signal wavelength set such that said noise figure between said first signal multiplexing section and said receiving station is lower than that of said second signal wavelength.

12. An optical transmission system according to claim 11, wherein said signal multiplexing section includes an optical ADM.

13. An optical transmission system according to claim 11, wherein said signal multiplexing section includes a WDM coupler.

14. An optical transmission system according to claim 11, wherein said optical amplifier is an Er-doped fiber amplifier.

15. An optical transmission system according to claim 11, further comprising signal wavelength indicating means for indicating a setting of said signal wavelength for said signal light outputting means in each of said plurality of multiplexing stations according to said noise

figure.

16. An optical transmission method applied to an optical transmission system comprising:

an optical transmission line through which a plurality of signal light components having wavelengths different from each other included in a predetermined wavelength band are transmitted;

an optical amplifier, installed on said optical transmission line, having a wavelength-dependent noise figure; and

a plurality of signal multiplexing sections installed on said optical transmission line connected to an input end side of said optical amplifier;

wherein, between two of said signal multiplexing sections adjacent each other, a signal light component having a signal wavelength with a noise figure lower than that of the signal wavelength of a signal light component multiplexed at said signal multiplexing section disposed downstream in a signal light propagating direction is selectively assigned as a signal light component multiplexed at said signal multiplexing section disposed upstream.

17. An optical transmission method applied to an optical transmission system comprising:

an optical transmission line through which a plurality of signal light components having wavelengths different from each other included in a predetermined wavelength band are

transmitted;

a plurality of optical amplifiers, installed on said optical transmission line, each having a wavelength-dependent noise figure;

a first signal multiplexing section, installed upstream said plurality of optical amplifiers in a signal light propagating direction, for multiplexing a first signal light component;

a second signal multiplexing section, installed between said plurality of optical amplifiers, for multiplexing a second signal light component; and

a receiving station, installed downstream said plurality of optical amplifiers, for receiving said first signal light component having a first signal wavelength multiplexed at said first signal multiplexing section and said second signal light component having a second signal wavelength multiplexed at said second signal multiplexing section;

wherein said first signal light component having said first signal wavelength whose noise figure between said first signal multiplexing section and said receiving station is lower than that of said second signal wavelength is selectively assigned as said signal light component multiplexed at said first signal multiplexing section.

18. An optical transmission method applied to an optical transmission system comprising:

an optical transmission line through which a plurality of signal light components having wavelengths different from each other included in a predetermined wavelength band are transmitted;

a plurality of optical amplifiers, installed on said optical transmission line, each having a wavelength-dependent noise figure;

a first signal multiplexing section, installed upstream said plurality of optical amplifiers in a signal light propagating direction, for multiplexing a first signal light component;

a second signal multiplexing section, installed upstream said plurality of optical amplifiers but downstream said first signal multiplexing section, for multiplexing a second signal light component; and

a receiving station, installed downstream said plurality of optical amplifiers, for receiving said first signal light component having a first signal wavelength multiplexed at said first signal multiplexing section and said second signal light component having a second signal wavelength multiplexed at said second signal multiplexing section;

wherein said first signal light component having said first signal wavelength whose noise figure between said first signal multiplexing section and said receiving station is lower than that of said second signal wavelength is

selectively assigned as said signal light component multiplexed at said first signal multiplexing section.